

We claim:

1. An apparatus for processing a near-baseband, received digitized television signal comprising:

a video carrier recovery circuit adapted to:

receive a video carrier recovery circuit input signal, said video carrier recovery circuit input signal including a video carrier signal;

detect a phase offset of said video carrier signal;

generate a phase adjustment signal based on said phase offset;

produce a video carrier recovery circuit output signal from said video carrier recovery circuit input signal and said phase adjustment signal;

a filter circuit to:

receive a filter circuit input signal, said filter circuit input signal including components in a frequency range that is expected to contain a digitized audio signal;

produce a filter circuit output signal excluding said components in said frequency range; and

a selection circuit adapted to switch between:

a first configuration, wherein said near-baseband, received digitized television signal is said video carrier recovery circuit input signal and said video carrier recovery circuit output signal is said filter circuit input signal; and

a second configuration, wherein said near-baseband, received digitized television signal is said filter circuit input signal and said filter circuit output signal is said video carrier recovery circuit input signal.

1 2. The apparatus of claim 1 wherein said filter circuit comprises a low pass finite
2 impulse response digital filter.

1 3. The apparatus of claim 1 wherein said video carrier recovery circuit is further
2 adapted to produce an indication of a frequency offset and said apparatus further
3 comprises a down-converter adapted to:

4 receive an offset-from-baseband digitized television signal;

5 receive said indication of said frequency offset from said video carrier
6 recovery circuit; and

7 based on said indication of said frequency offset, frequency shift said offset-
8 from-baseband digitized television signal by said frequency offset.

1 4. The apparatus of claim 3 wherein said filter circuit input signal includes further
2 components in a second frequency range, said second frequency range expected to
3 contain said digitized video signal and wherein said filter circuit further comprises a
4 second filter adapted to produce a second filter circuit output signal excluding said
5 further components in said second frequency range .

1 5. The apparatus of claim 4 wherein said second filter comprises a high pass finite
2 impulse response digital filter.

1 6. The apparatus of claim 5 further comprising a video signal processor adapted to
2 process said filter circuit output signal and produce a digital composite video
3 baseband signal according to a predetermined standard.

1 7. The apparatus of claim 6 wherein said predetermined standard is the National
2 Television System Committee standard.

1 8. The apparatus of claim 6 wherein said digitized video signal processor is adapted
2 to determine a position for a peak of a horizontal synchronization pulse for said
3 digital composite video baseband signal.

1 9. The apparatus of claim 8 further comprising a front-end gain control circuit
2 adapted to generate a gain control signal based on a characteristic of said digitized
3 television signal and an indication of said position for said peak of said horizontal
4 synchronization pulse.

1 10. A method of processing an analog television signal comprising:

2 converting said analog television signal to a digitized television signal having
3 a frequency offset relative to baseband;

4 reducing said frequency offset to produce a near-baseband digitized television
5 signal having a residual frequency offset;

6 producing a signal representative of said residual frequency offset;

7 based on said signal representative of said residual frequency offset, reducing
8 said frequency offset to produce a nearer-to-baseband digitized television
9 signal; and

10 filtering said nearer-to-baseband digitized television signal to produce a first
11 filter output signal having components restricted to a first frequency range,
12 where said first frequency range is expected to contain an audio signal.

1 11. The method of claim 10 further comprising filtering said nearer-to-baseband
2 digitized television signal to produce a second filter output signal having components
3 restricted to a second frequency range, where said second frequency range is
4 expected to contain a digitized video signal.

1 12. The method of claim 11 further comprising demodulating said second filter output
2 signal to produce a digital composite video baseband signal according to a
3 predetermined standard.

1 13. The method of claim 12 wherein said predetermined standard is the National
2 Television System Committee standard.

1 14. A television signal reception system comprising:

2 a tuner adapted to shift an analog television signal associated with a radio
3 frequency carrier to an analog television signal at an intermediate frequency;

4 an analog to digital converter adapted to produce a digitized television signal
5 having a frequency offset relative to baseband, where said digitized television
6 signal is based on said analog television signal at said intermediate
7 frequency;

8 a separator including:

9 a video carrier recovery circuit adapted to detect said frequency offset
10 and produce an indication of said frequency offset;

11 a mixer, responsive to receipt of said indication of said frequency
12 offset, adapted to reduce said frequency offset to produce a near-
13 baseband digitized television signal; and

14 a filter adapted to filter said near-baseband digitized television signal to
15 produce a digitized sound signal.

1 15. The television signal reception system of claim 14 wherein said filter is a first filter
2 and said separator further includes a second filter to filter said near-baseband
3 digitized television signal to produce a digitized video signal.

1 16. The television signal reception system of claim 15 further comprising a video
2 processor integrated with said separator, where said video processor is adapted to
3 produce a digital component video baseband signal based on said digitized video
4 signal.

1 17. The television signal reception system of claim 16 wherein said separator and
2 said video processor are further adapted to produce a control signal for said variable
3 gain amplifier to maintain characteristics of said analog television signal at said
4 intermediate frequency within a range acceptable to said analog to digital converter,
5 where said control signal is based on said digital component video baseband signal.

1 18. The reception system of claim 17 wherein said control signal is based in part
2 upon a position for a peak of a horizontal synchronization pulse in said digital
3 component video baseband signal.

1 19. The reception system of claim 18 wherein said control signal is based in part
2 upon a target metric of said digital television signal at the output of said analog to
3 digital converter.

1 20. The reception system of claim 19 wherein said target metric is peak amplitude.

1 21. The reception system of claim 19 wherein said target metric is peak power.

1 22. An apparatus for processing a near-baseband, received digitized television signal
2 comprising:

3 a video carrier recovery circuit including:

4 a video carrier recovery circuit input port to receive a video carrier
5 recovery circuit input signal, said video carrier recovery circuit input
6 signal including a video carrier signal;

7 a phase error detector to detect a phase offset of said video carrier
8 signal;

9 a loop filter to generate a phase adjustment signal based on said
10 phase offset;

11 a video carrier recovery circuit output port to provide a video carrier
12 recovery circuit output signal from said video carrier recovery circuit
13 input signal and said phase adjustment signal;

14 a filter circuit including:

15 a filter circuit input port to receive a filter circuit input signal, said filter
16 circuit input signal including components in a frequency range that is
17 expected to contain a digitized audio signal;

18 a filter to produce a filter circuit output signal by excluding said
19 components in said frequency range; and
20 a filter circuit output port to transmit said filter circuit output signal ;
21 a first selection switch to receive first received signals including said near-
22 baseband, digitized television signal and said filter circuit output signal and
23 pass one of said first received signals to said video carrier recovery circuit
24 input port; and
25 a second selection switch to receive second received signals including said
26 near-baseband, digitized television signal and said video carrier recovery
27 circuit output signal and pass one of said second received signals to said filter
28 circuit input port.